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Patent claims

1. Matrix-controlled transdermal therapeutic system comprising (i) an active-ingredient-impermeable cover layer, (ii) a self-adhesive matrix layer, or a plurality of matrix layers of which at least the matrix layer exposed while applying the system is self-adhesive, or one or more matrix layers whose surface remote from the cover layer and intended for adhesion at the application site is coated with an adhesive, the matrix layers comprising at least one ACE inhibitor (angiotensin converting enzyme inhibitor) in the form of a dicarboxylic acid, which is derivatised to form a derivative selected from the following group:
diester,
di-salt obtainable with base(s) and
mono-salt obtainable with acid(s),
and (iii) a removable protective layer.

2. System according to claim 1, **characterised** by at least one ACE inhibitor from the group imidapril, fosinopril, moexipril, perindopril, ramipril, spirapril, cilazapril, benazepril and/or trandolapril in the form of a dicarboxylic acid, which is derivatised to form a diester, a di-salt formed with base(s) and/or a mono-salt formed with acid(s).

3. System according to claim 1, **characterised** by at least one ACE inhibitor from the group imidapril, fosinopril, moexipril, perindopril, ramipril, spirapril, cilazapril and/or trandolapril in the form of a dicarboxylic acid, which is derivatised to form a diester, a di-salt formed with base(s) and/or a mono-salt formed with acid(s).

4. System according to claim 2 and/or 3, **characterised** by ramipril and/or trandolapril, especially mono-sulphonic acid salt or disodium salt of trandolaprilat and/or ramiprilat.

5. System according to claim 2 and/or 3, **characterised** by an ethyl ester of trandolapril and/or ramipril.

6. System according to claim 1, 2 and/or 3, **characterised** in that the ACE inhibitor carries, in addition to a first ester group, a further ester group from the following group: m thyl, ethyl, propyl, isopropyl, butyl, tert-butyl, pentyl, hexyl, heptyl, octyl, nonane, decane groups and isomers thereof; the first ester group being freely selected, the first ester group being freely selected, the ACE inhibitor being a pharmaceutically acceptable compound, or the first and second ester group being identical.

7. System according to claim 6, **characterised** in that the further ester group is an ethyl group.

8. System according to at least one of the previous claims, **characterised** by a di-salt according to claim 1 which is obtainable using a base from the following group: sodium hydroxide, potassium hydroxide, magnesium hydroxide, calcium hydroxide, aluminium hydroxide, alkaline ammonium salt, organic amine, especially ethylenediamine, ethylamine, diethylamine, dipropylamine, diisopropylamine, tripropylamine, trihexylamine, tridodecylamine, dicyclohexylamine, ethanolamine, diethanolamine, triethanolamine, triisopropanolamine, 1-amino-2-propanol, 2-amino-2-methyl-1-propanol and oleylamine and heterocyclic amines, especially N-methylpiperazine and 1-(2-hydroxyethyl)pyrrolidine.

9. System according to claim 8, **characterised** by sodium hydroxide as base.

10. System according to at least one of claims 1 to 7, **characterised** by a mono-salt according to claim 1 which is obtainable using an acid from the following group: inorganic acid, especially hydrochloric acid, hydrobromic acid, hydriodic acid, nitric acid, sulphuric acid and phosphoric acid, organic carboxylic acid, especially salicylic acid, maleic acid, adipic acid, sorbic acid, malonic acid, 1,4-butanedioic acid, malic acid, pivalic acid, succinic acid, nicotinic acid, isonicotinic acid, furan-2-carboxylic acid, dichloroacetic acid and benzoic acid, fatty acids, especially lauric acid, myristic acid and oleic acid, aliphatic sulphonic acid, especially methane-, ethane-, propane-, isopropane-, butane-, isobutane-, pentane-, isopentane-, hexane-, heptane-, octane-, nonane-, decane-, undecane- and dodecane-sulphonic acid and aromatic sulphonic acid, especially toluene- and benzenesulphonic acid.

11. System according to claim 10, **characterised** by methanesulphonic acid as acid.

12. System according to at least one of the previous claims, **characterised** in that ACE inhibitors,

(i) before formation of the di-salt thereof according to claim 1, together with base(s) for salt formation, in a molar ratio, separately from one another, or

(ii) before formation of a mono-salt according to claim 1, together with acid(s) for salt formation, in equimolar ratio, separately from one another, or

(iii) as the di-salt according to claim 1 or the mono-salt according to claim 1

have been incorporated into the system.

13. System according to at least one of the previous claims, characterised by a content of ACE inhibitor(s) of from 2 to 25 % by weight and especially from 10 to 15 % by weight, based on the matrix weight.

14. System according to at least one of the previous claims, **characterised** in that the system has, on that side of the cover layer which is remote from the matrix layer(s), (iv) a covering (overtape)

(i) which extends beyond the cover layer on all sides and which is provided with an adhesive that covers its surface or at least the region, in itself uninterrupted, extending beyond the cover layer, or

(ii) which covers over the surface of the cover layer but not does not extend beyond it and which is provided with an adhesive that covers its surface.

15. System according to claim 14, **characterised** in that the covering (overtape) provided with an adhesive completely covers over the active-ingredient-impermeable cover layer or is provided with one or more perforations above the cover layer or is of annular shape.

16. System according to at least one of claims 14 or 15, **characterised** in that the active-ingredient-impermeable cover layer and the covering provided with an adhesive are permeable to water vapour.

17. System according to one of the previous claims, **characterised** in that the active-ingredient-impermeable cover layer and the covering (overtape) provided with an adhesive are made from the same material.

18. System according to at least one of the previous claims, **characterised** in that the matrix layer(s) comprise(s) one or more permeation enhancers.

19. System according to claim 18, **characterised** by highly disperse silicon dioxide, polyoxyethylene 7-glycerol monococoate and/or 2-octyldodecanol (Eutanol G) as permeation enhancer(s).